

CLAIMS

1. A method of forming an article having load bearing capabilities from at least one shape defining fluid impermeable interior member and at least one external skin, said method comprising the steps of:-
 - (i) heating a thermoformable sheet intended to form the external skin,
 - (ii) disposing a major surface of the member(s) at an inclined angle relative to the sheet,
 - (iii) moving said heated sheet relative to said member(s) to bring the heated sheet into substantially point or line contact with the surface of the member(s),
 - (iv) applying a fluid pressure differential between the side of said sheet remote from the member(s) and the side of the member(s) remote from said sheet and continuing the relative movement between the sheet and the member(s), to progressively move the point or line contact front between the sheet and the member(s) across the surface thereby expelling any gas present between the sheet and the surface of the major surface and conforming the sheet to the shape of the major surface and mutually engaging the sheet and the member(s), and
 - (v) maintaining said fluid pressure differential until said thermoformable sheet has cooled, whereupon tensional forces arise in the sheet in all directions.
2. The method as claimed in claim 1 wherein in carrying out step (ii) said heated sheet is maintained substantially flat and said major surface is inclined relative to said flat sheet.
3. The method as claimed in claim 1 wherein in carrying out step (ii) said heated sheet is deformed to be inclined relative to said major surface.
4. The method as claimed in claim 3 wherein said heated sheet is deformed by pressing a contact member into that side of said sheet remote from said major surface.
5. The method as claimed in claim 4 wherein said contact finger deforms said heated sheet into a substantially V-shape or cone-shape having an apex contacting the major surface of the member(s) thereby dividing the sheet into two regions each disposed at the inclined angle to the major surface, whereby subsequent relative movement between the sheet and the surface progressively moves a contact front for each region of the sheet across the major surface.
6. The method as claimed in claim 2 wherein the major surface of the member(s) is/are disposed at approximately 90° to the sheet and the contact front moves in a substantially vertical direction along the surface.

7. The method as claimed in claim 6 wherein the member(s) has/have a pair of parallel or upwardly converging major surfaces, and the sheet is applied to both the major surfaces simultaneously.
8. The method as claimed in claim 2 wherein the major surface of the member is inclined at an angle less than 40°.
9. The method as claimed in claim 8 wherein said angle is about 20°.
10. The method as claimed in claim 1 including the prior step of coating a first major surface of said member by positioning a tube alongside said member which opens onto said first major surface, and subsequently coating a second major surface in accordance with the method as claimed in claim 1.
11. The method as claimed in any one of claims 1-9 including the further steps of locating said interior member with a first external skin, inverting said member and coating with a second external skin.
12. The method as claimed in claim 11 wherein said second external skin is inclined relative to said member during the application thereof.
13. The method as claimed in claim 11 or 12 including the further step of placing said inverted interior member on a pedestal.
14. The method as claimed in any one of claims 1-13 including the further prior step of scoring or incising said interior member.
15. An apparatus for forming an article having load bearing capabilities from at least one shape defining fluid impermeable interior member and at least one external skin, said apparatus comprising:-

a sheet holding device to hold a sheet of thermoformable plastics material at least a pair of opposite edges thereof;

inclining means to dispose a major surface of said member(s) at an inclined angle relative to said sheet;

translation means to move the member relative to the sheet holding device to move the sheet and the surface together;

heating means to heat a thermoformable plastic sheet held in said sheet holding device to at least partially soften said sheet;

pressure differential means to create a pressure differential between the sheet and the member(s) to conform the sheet to the member(s), wherein the translation means move the heated sheet into substantially point or line contact with said major surface of the member(s) and thereafter progressively moves the point or line

contact front between the sheet and the member(s) across the major surface thereby expelling any gas present between the sheet and the major surface; and maintaining said pressure differential until said thermoformable sheet has cooled, whereupon tensional forces arise in the sheet in all directions.

16. The apparatus as claimed in claim 15 wherein said sheet holding device maintains said sheet substantially level, and said inclining means comprises an inclined former to hold said member(s) with said major surface inclined to said level sheet.

17. The apparatus as claimed in claim 16 wherein said inclined former substantially comprises an inclined perforated plane.

18. The apparatus as claimed in claim 15 wherein said inclining means comprises deforming means to deform said heated sheet into a surface which is inclined relative to said major surface.

19. The apparatus as claimed in claim 18 wherein said deforming means comprises a contact finger.

20. The apparatus as claimed in claim 19 wherein said contact finger is V-shaped or cone-shaped.

21. The apparatus as claimed in any one of claims 15-20 wherein said interior member is positioned on a pedestal.

22. An article coated by a method as claimed in claim any one of claims 1-14 and/or by the apparatus as claimed in any one of claims 15-21.